CLAIMS

1. A method comprising:

   estimating, on the basis of a constellation error in a received OFDM signal, an extent of an I/Q imbalance error, caused by direct IQ conversion of said received OFDM signal; and

   on the basis of said extent, estimating an equalizing transformation that reduces said error.

2. The method of claim **1**, further comprising applying said equalizing transformation to said received signal.

3. The method of claim **1**, wherein estimating an extent of an I/Q imbalance error comprises estimating a transmitted symbol corresponding to said received OFDM signal.

4. The method of claim **1**, wherein estimating a transformation comprises evaluating an equalizer matrix.

5. The method of claim **1**, wherein estimating a transformation comprises:

evaluating a first transformation on the basis

of a first portion of a spectrum of said OFDM

signal;

evaluating a second transformation on the

basis of a second portion of said spectrum;

and

combining said first and second

transformations to obtain said equalizing

transformation.

6.   The method of claim **5**, further comprising selecting said

second portion of said spectrum to include image

frequency components of said spectrum.

7.   The method of claim **6**, wherein selecting said second

portion to include image frequency components comprises

selecting said second portion to include negative

frequency components of said spectrum.

8.   The method of claim **1**, wherein estimating an equalizing

transformation comprises estimating a frequency

dependent transformation.

9.   A receiver comprising:

an I/Q imbalance estimator for estimating, on

the basis of a constellation error of a

received OFDM signal, an I/Q imbalance error,

caused by direct conversion of said received

signal ; and

an adaptive filter system in communication

with said I/Q imbalance estimator for

generating an equalizing transformation for

reducing said I/Q imbalance error.

10. The receiver of claim **9**, further comprising a mixer in

communication with said adaptive filter system for

applying said equalizing transformation to said received

signal.

11. The receiver of claim **9**, wherein said adaptive filter

system comprises a first adaptive filter for generating

a first transformation on the basis of a first portion

of a spectrum of said received OFDM signal and a second

adaptive filter for generating a transformation on the

basis of a second portion of said spectrum.

12. The receiver of claim **11**, wherein said second adaptive

filter is configured to receive a second portion that

includes image frequency components of said spectrum.

13. The receiver of claim **12**, wherein said second adaptive

filter is configured to receive a second portion that

includes negative frequency components of said spectrum.

14. The receiver of claim **9**, further comprising a weight-update block in communication with said adaptive filter system and said I/Q imbalance estimator, said weight-update block being configured to update weighting coefficients of said adaptive filter system on the basis of an error signal provided by said I/Q imbalance estimator.

15. An adaptive filter system comprising

> a first adaptive filter for generating a first transformation on the basis of a first portion of a received OFDM signal spectrum; and

> a second adaptive filter for generating a second transformation on the basis of a second portion of said spectrum.

16. The adaptive filter system of claim **15**, wherein said second adaptive filter is configured to receive a second portion of said spectrum that includes image frequency components of said spectrum.

17. The adaptive filter system of claim **14**, further comprising a weight-update block in communication with each of said first and second adaptive filters, said weight-update block being configured to determine

weighting coefficients for said first and second

adaptive filters on the basis of an error signal.

18. A transmitter comprising:

> an I/Q imbalance estimator for estimating, on the
>
> basis of a constellation error of an OFDM
>
> signal, an I/Q imbalance error, caused by direct
>
> conversion of said signal; and

> an adaptive filter system in communication with
>
> said I/Q imbalance estimator for generating an
>
> equalizing transformation for reducing said I/Q
>
> imbalance error.

19. The transmitter of claim **18**, wherein said adaptive

filter system comprises a first adaptive filter for

generating a first transformation on the basis of a

first portion of a spectrum of said OFDM signal and a

second adaptive filter for generating a transformation

on the basis of a second portion of said spectrum.

20. The transmitter of claim **19**, wherein said second

adaptive filter is configured to receive a second

portion that includes image frequency components of said

spectrum.